II B.Tech (CSE)-CO-Questions-Assignment Test 2

1) Explain, how a character pressed using a key board is displayed on a computer screen? (2M)

2) How the following expression is evaluated using a STACK? (2M)
(9+7-2 *4)/8

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3)For each possible mode, calculate the effective address and the operand that must be loaded into AC. Table shows the tabular list of the numerical example.

a) Direct b) Immediate c) Indirect d) PC relative e) Displacement
f)Register g) Register indirect h)Auto indexing with increment, using R1
i) Auto indexing with decrement , using R1
j) Base register addressing (5M)

PC=300
R1=500
XR=100
AC=?

Address	
300	Load to AC/mode
301	Address=600
302	Next instruction
449	
499	450
500	800
600	900
700	900
800	325
900	320
902	850

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4) What is the result of A after in the following operations. A=0 0 110011 (2M)

a) logical shift left once
b) logical shift left 2 times
c) Arithmetic shift left
d) Arithmetic shift right

5) Answer in the following in a line or two. (14*1=14M)

a) How to detect an overflow in a 2's complement arithmetic?
b) What type of memory a STACK is?
c) Name 2 applications of STACK
d) How many pointers are required to use Queue memory?
e) What is meant by effective address in addressing modes?
f) How a 4 byte data is represented in little endian memory organization ?

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g) What are the conditional flags that are affected with SUBTRACT operation in a single addressing machine?

h) How the CPU keeps track of information about the result of various operations?

i) Name the utility program used to load the object program from magnetic memory to the main memory before execution.

j) What is the purpose of a buffer ?

k) What type of Addressing mode is advantages to deal with:
(i)lists and arrays (ii) representing target address in branch instructions (iii) accessing global variables (iv) accessing data in successive memory locations

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5) Answer in the following in a line or two.

(a) How to detect an overflow in a 2's complement arithmetic?
Ans: If **the carry INTO** the high order column (MSB is not equal **the carry OUT OF** the high order column.(MSB)

(b) What type of memory a STACK is?
Ans: LIFO

c) Name 2 applications of STACK?
Ans: Evaluation of post fix expressions, Syntax parsing, Recursive Function, Calling Function, Conversion of Expressions from one form to other, Towers of hanoi

d) How many pointers are required to use Queue memory?
Ans: Two

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e) What is meant by effective address in addressing modes?
Ans: The actual address where the required data is available for execution fetch

f) How a 4 byte data is represented in little endian memory organization ?
Ans: A 4 byte word is stored in a memory address from left to right , starting with the least significant byte.

g) What are the conditional flags that are affected with SUBTRACT operation in a single addressing machine?
Ans: ZERO and SIGN flags

h)How the CPU keeps track of information about the result of various operations?
Ans: Using conditional flags

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i) Name the utility program used to load the object program from magnetic memory to the main memory before execution.
Ans: LOADER

j) What at is the purpose of a buffer ?
Ans: A buffer (register) is a data area shared by hardware devices or program processes that operate at different speeds or with different sets of priorities.

k) What type of Addressing mode is advantages to deal with :
(a) lists and arrays –index addressing
(b) representing target address in branch instructions –relative addressing
(c) accessing global variables- indirect addressing
(d) accessing data in successive memory locations – Auto increment addressing

II B.Tech (CSE)-CO-Answers for Assignment Test 2

1. Explain, how a character pressed using a key board is displayed on a computer screen?

Answers: See class notes.

2. How the following expression is evaluated using a STACK? (2M)

(9+7-2 *4)/8

Answers:

1. Convert into postfix notation.
2. Push the numbers into the stack.
3. When you find an operator Pop the operator from the operator stack.
4. Pop the value stack twice, getting two operands.
5. Apply the operator to the operands, in the correct order.
6. Push the result onto the value stack

1) 2 4 * 9 7 + - 8

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3.

Tabular list of numerical example		
Addressing mode	**Effective address**	**Content of AC**
Direct address	600	900
Immediate operand	301	600
Indirect address	900	320
Relative address	902	850
Indexed address	800	325
Register	-	500
Register indirect	500	800
Autoincrement	500	800
Autodecrement	499	450

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4. What is the result of A after in the following operations. A=0 0 11 0 0 1 1

Logical shift left: 0 1 1 0 0 1 1 0-----1 1 0 0 1 1 0 0--1 0 0 1 1 0 0 0
Logical shift right: 0 0 0 1 1 0 0 1-----0 0 0 0 1 1 0 0---0 0 0 0 0 11 0
Arithmetic shift left: 0 1 1 0 0 1 1 0---0 1 1 0 0 1 1 0 0
Arithmetic shift right : 0 0 0 1 1 0 0 1---0 0 0 0 1 1 0 0